

CONVERTIBLE LUGGAGE

FIELD OF THE INVENTION

[001] The invention relates to the field of luggage.

BACKGROUND OF THE INVENTION

[002] Conventional luggage, e.g., a suitcase, may be used for packing and/or storing one or more items, e.g. clothing. A user may use the luggage, for example, for transferring the items from a first location to a second location, e.g., when traveling.

[003] The user may pack the items at the first location and transfer the luggage to the second location. The user may unpack at the second location at least some of the packed items and arrange them, e.g., on a shelf of a closet, in order, for example, to conveniently access them in the future.

[004] The user may then re-pack the unpacked items, e.g., in order to transfer them to yet another location or back to the first location.

[005] The unpacking, arranging and/or re-packing of the items in the luggage may be time consuming. A user traveling relatively frequently and/or for relatively short periods of time, for example, a businessman, may spend a relatively large amount of time for packing, unpacking and/or arranging the items.

SUMMARY OF EMBODIMENTS O THE INVENTION

[006] Embodiments of the invention may include a luggage with a flexible collapsible compartmented interior structure adapted, for example, for convenient packing, unpacking and storage, e.g., temporary storage, of packed items.

[007] Embodiments of the present invention provide a convertible luggage including a flexible collapsible, compartmented interior structure able to fit, when in a collapsed state, into an interior of the luggage, and to be transformed from the collapsed state into a temporary sturdy expanded state when the luggage is open.

[008] According to exemplary embodiments of the invention, the interior structure may include a compartmented flexible interior arrangement, and a support mechanism able to support the interior arrangement when the interior structure is in the expanded position.

[009] According to some exemplary embodiments, the support mechanism may include two generally stiff support arrangements located, e.g., at two opposite sides of the interior arrangement, respectively.

[0010] According to some exemplary embodiments, the convertible luggage may include a support connector able to connect the support mechanism to the interior arrangement.

[0011] According to one exemplary embodiment, the support mechanism may be rotated with respect to the interior arrangement, and placed on a top surface of the interior arrangement when the interior structure is in the collapsed state.

[0012] According to another exemplary embodiment, the support mechanism may include a telescopic mechanism able to be in an expanded state and a closed state according to the state of the interior structure. The telescopic mechanism may include a telescopic bar and/or a handle able to assist in locking and unlocking the telescopic mechanism.

[0013] According to exemplary embodiments, the interior arrangement may include one or more generally stiff horizontal separators and/or one or more generally flexible vertical separators. A length and a width of the one or more horizontal separators may be smaller than a length and a width of the interior of the luggage, respectively.

[0014] According to exemplary embodiments, the convertible luggage may include at least one handle for lifting the interior structure.

Attorney Docket Number: P-6421-US

[0015] According to exemplary embodiments, the interior structure may be removed from the luggage.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The subject matter regarded as the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, both as to organization and method of operation, together with objects, features and advantages thereof, may best be understood by reference to the following detailed description when read with the accompanied drawings in which:

[0017] Fig. 1 is a schematic illustration of a flexible collapsible compartmented interior structure according to one exemplary embodiment of the invention;

[0018] Fig. 2 is a schematic illustration of the structure of Fig. 1 in an expanded state according to some exemplary embodiments of the invention;

[0019] Fig. 3 is a schematic illustration of the structure of Fig. 1 in a transitional expand-collapse state according to some exemplary embodiments of the invention;

[0020] Fig. 4 is a schematic illustration of a flexible collapsible compartmented interior structure according to another exemplary embodiment of the invention;

[0021] Fig. 5 is a schematic illustration of a handle of the structure of Fig. 4 according to some exemplary embodiments of the invention;

[0022] Figs. 6A and 6B are schematic illustrations of a telescopic mechanism in an open state and in a closed state, respectively, according to some exemplary embodiments of the invention;

[0023] Fig. 7 is a schematic illustration of the structure of Fig. 4 in a collapsed state according to exemplary embodiments of the invention; and

[0024] Fig. 8 is a schematic illustration of a support connector according to some exemplary embodiments of the invention.

[0025] It will be appreciated that for simplicity and clarity of illustration, elements shown in the drawings have not necessarily been drawn accurately or to scale. For example, the dimensions of some of the elements may be exaggerated relative to other elements for clarity or several physical components included in one functional block or element. Further, where considered appropriate, reference numerals may be repeated among the drawings to

Attorney Docket Number: P-6421-US

indicate corresponding or analogous elements. Moreover, some of the blocks depicted in the drawings may be combined into a single function.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0026] In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those of ordinary skill in the art that the present invention may be practiced without these specific details. In other instances, well-known methods, procedures, components and structures may not have been described in detail so as not to obscure the present invention.

[0027] Embodiments of the invention may include a luggage with a flexible collapsible compartmented interior structure adapted, for example, for convenient packing, unpacking and storage, e.g., temporary storage, of packed items, as described below.

[0028] According to embodiments of the invention, the interior structure may be able to fit when in a collapsed state into an interior of the luggage, and to be transformed from the collapsed state into a temporary sturdy expanded state when the luggage is open, as described below.

[0029] Reference is made to Fig. 1, which schematically illustrates a flexible collapsible, compartmented interior structure 100 according to one exemplary embodiment of the invention.

[0030] According to the exemplary embodiments of Fig. 1, structure 100 may include a compartmented flexible interior arrangement 101 having one or more generally stiff horizontal separators 105, which may function as shelves, and two or more generally soft (e.g., flexible) vertical separators 106, which may function as walls. Separators 105 may have a length and a width smaller than a width and a length of an interior of a luggage 110. A total thickness of separators 105 may be smaller compared to a height of the interior of luggage 110. Thus arrangement 101 may be fitted, for example, when in a collapsed state, e.g., as described below, into the interior of luggage 110.

[0031] According to exemplary embodiments of the invention, arrangement 101 may include any desired number of separators 106 and/or separators 105 having any desired shape and/or size. For example, arrangement 101 may include a relatively large number of separators 105 and/or separators 106 in order to allow separately packing and/or storing of a relatively large number of items.

[0032] According to exemplary embodiments of the invention, structure 100 may also include a support mechanism able to support arrangement 101 when in an expanded state, e.g., as described below.

[0033] According to exemplary embodiments of the invention, the support mechanism may include two generally stiff support arrangements 103, e.g., located on two sides of arrangement 101, respectively. Support arrangements 103 may include “leg” elements formed of any suitable relatively stiff material, e.g., metal or plastic.

[0034] According to exemplary embodiments of the invention, structure 100 and/or arrangement 101 may or may not be attached to luggage 110, e.g., to the interior bottom surface of luggage 110. In some exemplary embodiments, when luggage 110 is opened, structure 100 may be detached and removed from luggage 110 and may be used, for example, as a stand-alone compartmented structure, e.g., for temporary storage of items.

[0035] According to exemplary embodiments of the invention, structure 100 may be used in an expanded (“open”) state or in a collapsed (“closed”) state, as described below.

[0036] Reference is made to Fig. 2, which schematically illustrates structure 100 in the expanded state according to exemplary embodiments of the invention.

[0037] As shown in Fig. 2, when the collapsible interior is in the expanded state, legs 103 may be generally vertical to a surface, e.g., a floor, on which structure 100 may be positioned. Legs 103 may be attached to an outer part of arrangement 101, for example, by one or more detachable connectors 104 or any other suitable detachable attachment elements, e.g., clips. In the expanded state of structure 100, vertical walls 106 may be generally stretched to their full size, e.g., forming expanded interior compartments in arrangement 101. Furthermore, in the expanded state of structure 100, legs 103 may temporarily support arrangement 101 such that arrangement 101, e.g., including walls 106 and separators 105, is generally sturdy and steady.

[0038] According to exemplary embodiments of the invention, structure 100 when in the expanded state, may be either attached to the luggage or may be pulled out of the luggage and placed, for example, directly on the floor.

[0039] Reference is made to Fig. 3, which schematically illustrates structure 100 in a transitional expand-collapse state according to exemplary embodiments of the invention.

[0040] According to exemplary embodiments of the invention, a user may use one hand to hold a handle 102, e.g., connected to a top of arrangement 101, and to slightly lift structure 100. Using another hand, the user may detach one leg 103 from arrangement 101, e.g., by detaching connectors 104, pull the leg, rotate the leg, e.g., by 270 degrees, and place the rotated leg, e.g., on top of arrangement 101. After completing this procedure with one leg, the user may repeat the same procedure with the other leg. Once both legs are placed on top of arrangement 101, arrangement 101 may be free to collapse downward, e.g., by gravity, and may be conveniently tucked inside the luggage (not shown in Fig. 3).

[0041] According to exemplary embodiments of the invention, interior structure 100 may be tightly collapsed and tucked inside the luggage, and secured using straps or any other suitable securing means (not shown in the drawings), e.g., as are known in the art. The straps or other securing means may be used to lock interior structure 100 in a closed position and prevent undesired, e.g., spontaneous, opening of the interior structure, for example, due to a pressure exerted by items tightly stored in the compartments of the structure. Legs 103 may rest on top of arrangement 101. The collapsed state is not particularly shown in the drawings, but should be readily appreciated by those skilled in the art in view of the various descriptions and illustrations herein.

[0042] According to exemplary embodiments of the invention, a user may open the luggage and may release the straps or other securing means of the structure 100. The user may then pull handle 102, e.g., using one hand, and may proceed to pull the entire interior structure out of the luggage. Once the interior structure is substantially completely open, the user may use another hand to rotate one leg 103, e.g., by approximately 270 degrees, to a generally vertical position, and may attach the rotated leg to the body of the interior structure, e.g., by connectors 104. Once finished with one leg, the user may repeat the same procedure with the other leg.

[0043] According to other embodiments of the invention, the flexible collapsible compartmented interior structure may include any other desired configuration to support the interior structure in an expanded state and to transform the interior structure from the expanded state into the collapsed state, e.g., as described below.

[0044] Reference is now made to Fig. 4, which schematically illustrates a flexible collapsible, compartmented interior structure 400 according to another exemplary embodiment of the invention.

[0045] According to the exemplary embodiments of Fig. 4, structure 400 may include a compartmented flexible arrangement 401 having one or more generally stiff horizontal separators 405, which may function as shelves, and two or more generally soft (e.g., flexible) vertical separators 406, which may function as walls. Separators 405 may have a length and a width smaller than a width and a length of an interior of a luggage 410. A total thickness of separators 405 may be smaller compared to a height of the interior of luggage 410. Thus arrangement 401 may be fitted, for example, when in a collapsed state, e.g., as described below, into the interior of luggage 410.

[0046] According to exemplary embodiments of the invention, arrangement 401 may include any desired number of separators 406 and/or separators 405 having any desired shape and/or size. For example, arrangement 401 may include a relatively large number of separators 405 and/or separators 406 in order to allow separately packing and/or storing of a relatively large number of items.

[0047] According to exemplary embodiments of the invention, structure 400 may also include a support mechanism to support arrangement 401 when in an expanded state, e.g., as described below.

[0048] According to exemplary embodiments of the invention, structure 400 may include two telescopic mechanisms 403, e.g., located on two sides of structure 400, respectively. Mechanism 403 may include, for example, one or more, e.g., a pair, of "telescopic" bars 415 of any suitable relatively stiff material, e.g., metal or plastic. Bar 415 may be closed or expanded, as is known in the art.

[0049] According to exemplary embodiments of the invention, mechanism 403 may also include a handle 421, e.g., a plastic handle, connected, for example, by a connector 422, to a first end of telescopic bar 415, e.g., such that each pair of bars 415 is connected to one handle 421.

[0050] Reference is also made to Fig. 5, which schematically illustrates handle 421 according to exemplary embodiments of the invention.

[0051] According to exemplary embodiments of the invention, handle 421 may include a button 504, e.g., located at the bottom of handle 421. Button 504 may be associated with a locking mechanism (not shown), e.g., as is known in the art, for locking telescopic bars 415 connected to handle 421. For example, telescopic bars 415 may be opened or closed relatively freely when button 504 is pressed. Once button 504 is released, the telescopic bars may be locked in their current position, whether opened or closed.

[0052] According to exemplary embodiments of the invention, mechanism 403 may be in a collapsed ("closed") state or in an expanded ("open") state, as described below.

[0053] Reference is made to Figs. 6A and 6B, which schematically illustrate telescopic mechanism 403 in an expanded state and in a closed state, respectively, according to exemplary embodiments of the invention.

[0054] A second end of each telescopic bar 415 may be connected by a connector 640 to a predetermined surface, for example, a bottom surface of structure 400 (Fig. 4) or an outer surface of arrangement 401 (Fig. 4). Alternatively, the support surface may include an interior surface of luggage 410. Accordingly, structure 400 (Fig. 4) may be attached to the interior surface of luggage 410.

[0055] Referring back to Fig. 4, handle 421 may be connected to arrangement 401, for example, by a support connector 450, e.g., as described below. Thus, arrangement 401 may be used in an expanded state or in a collapsed state corresponding to an expanded state and a collapsed state of sub-structures 403, respectively, as described below.

[0056] As shown in Fig. 4, when structure 400 is in the expanded state, bars 415 may be generally vertical to a surface, e.g., a floor or the interior surface of luggage 410, on which structure 400 may be positioned. In the expanded state of structure 400, vertical walls 406 may be generally stretched to their full size, e.g., forming expanded interior compartments in arrangement 401. Furthermore, in the expanded state of structure 400, bars 415 may support structure 400 such that arrangement 401, e.g., including walls 406 and separators 405, is generally sturdy and steady.

[0057] According to exemplary embodiments of the invention, structure 400 when in the expanded state, may be attached to luggage 410.

[0058] According to exemplary embodiments of the invention, a user may hold both handles 421 and press buttons 504 (Fig. 5). While holding the buttons, the user may push the handles down towards the bottom of the luggage until the interior arrangement is completely tucked inside the luggage. The user may then release buttons 504 (Fig. 5) such that bars 415 are locked in the closed state.

[0059] Reference is made to Fig. 7, which schematically illustrates structure 400 in the collapsed state according to exemplary embodiments of the invention.

[0060] As illustrated by Fig. 7, structure 400 may be tightly collapsed and tucked inside luggage 410. At this state telescopic bars 415 (not shown in Fig. 7) may be locked, e.g., in order to prevent spontaneous opening of structure 400.

[0061] In order to expand structure 400, a user may, for example, hold handles 421 and press buttons 504 (Fig. 5). While holding buttons 504 (Fig. 5) pressed, the user may pull structure 400 up, e.g., by pulling up handles 421, until bars 415 (Fig. 1) are fully expanded. The user may then release buttons 504 (Fig. 5) to lock bars 415 (Fig. 1) at a current, e.g., expanded, position.

[0062] Reference is made to Fig. 8, which schematically illustrates support connector 450 according to some exemplary embodiments of the invention.

[0063] According to some exemplary embodiments of the invention, connector 450 may be connected, e.g., fixedly attached, to arrangement 401, and detachably connected to handle 421. For example, connector 450 may include two generally flexible connecting elements, e.g., plastic connecting elements 452, to fit in two respective gaps of handle 421. Handle 421 may be detached from connector 450, for example, by pressing elements 452 towards each other.

[0064] While certain features of the invention have been illustrated and described herein, many modifications, substitutions, changes, and equivalents may occur to those of ordinary skill in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the invention.